



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Satoshi HOSHINO

Serial No. 09/252,034

Filed February 18, 1999

DEVICE FOR DETECTING A FINGERPRINT,
ELECTRIC APPARATUS AND DOORKEEPER
APPARATUS

RECEIVED

Appeal No. _____ JUL 20 2001

GROUP 2623

Technology Center 2600

Examiner S. Ahmed

APPEAL BRIEF

MAY IT PLEASE YOUR HONORS:

1. Real Party in Interest

The real party in interest in this appeal is the current assignee, NEC Corporation of Tokyo, Japan.

2. Related Appeals and Interferences

None.

3. Status of Claims

Claims 8-25 remain in the application and are the subject of the present appeal. The Examiner has indicated that claim 25 includes patentable subject matter and would be allowed upon overcoming the rejection under §112, first paragraph.

4. Status of Amendments

A response was filed on May 2, 2001 after the final rejection. The Advisory Action of May 10, 2001 indicated that the response after final would not be entered. Therefore, the claims on appeal are as set forth in the Appendix.

5. Summary of Invention

The present invention is directed to a device for detecting a fingerprint (page 1, first paragraph). The conventional fingerprint detection device includes a fingerprint input section that is depressed by a fingertip of a finger whose print is to be detected. One of the problems with prior art fingerprint detection devices is that pressure exerted by the finger on the input section is often insufficient or is too high to detect a fingerprint (page 2, middle paragraph). An object of the present invention is to reduce the variation of pressure applied to a contact surface of a fingerprint input section (page 2, last paragraph). As is apparent to those of skill in the art, the print will smear if the pressure exerted by the finger is too high and the print is vague and incomplete if the pressure is too low.

Figure 1 shows that a finger contact surface 6 moves down within a deformable holder 10 (such as a leaf spring, page 7, line 5) when downward pressure is applied to the contact surface and moves up under the urging of spring 7. When the contact surface 6 is depressed to a predetermined position, a projection 6b of the conductive frame 6a fits into recessed portion 10a of the holder 10 and a switch 9 is turned ON to operate the fingerprint detection apparatus (page 7, lines 6-25). The force of spring 7 is set so that when the contact surface is in the predetermined position the pressure on the contact surface is suitable for detecting a fingerprint (page 7, lines 18-22). That is, a finger must press down on the contact surface with a suitable pressure even when the contact surface is in the predetermined position.

The arrangement of the holder 10, recess 10a, and projection 6b constitute a lock mechanism 8 (Figure 1). As explained at page 9, second paragraph, the lock mechanism 8 provides a click impression or feeling of engagement to inform the user whether the pressure on contact surface 6 is correct. The user continues to push contact surface 6 until the click impression is felt. The click impression prevents the user from applying too little or too much pressure to contact surface 6 (page 9, last two lines of second paragraph).

More specifically, and with reference again to Figure 1 and claim 20 in the Appendix, the device includes a moving element 7 opposing downward movement of contact surface 6 when contact surface 6 is pressed downward by a fingertip whose fingerprint is to be detected, and a restraint 10 that has a detent position 10a at a depressed location of contact surface 6 and that urges contact surface 6 to remain in the detent position 10a when a first pressure is applied to contact surface 6 by a fingertip and that permits movement of contact surface 6 below detent position 10a when pressure exceeds the first pressure and above detent position 10a when pressure is less than the first pressure (page 9, second paragraph). The device also includes a detecting unit 11 detecting a fingerprint on the contact surface when the contact surface is in the detent position.

6. Issues

Whether claims 8-25 contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention as required by 35 U.S.C. §112, first paragraph.

Whether the subject matter of claims 8-24 would have been obvious under 35 U.S.C. §103 to one of skill in the art at the time of the present invention over SHIMIZU et al. (Japanese Laid-Open Publication 58-201178) in view of NISHIKI (Japanese Laid-Open Publication 64-68894).

7. Grouping of Claims

The claims do not stand or fall together. Claims 8-22 stand or fall together. Claims 23-24 stand or fall together. Claim 25 stands or falls alone.

8. Argument

Rejection under §112, first paragraph.

The Examiner states that the specification does not disclose a restraint that urges the contact surface to remain in the detent position when a first pressure is applied to the contact surface by a fingertip and that permits movement below the detent position when pressure on the contact surface is greater than the first pressure and above the detent position when pressure on the contact surface is less than the first pressure. The Examiner points to pages 6 and 7 that discuss the lock mechanism 8. Specifically, page 6, lines 15-17 state that when contact surface 6 is pushed down to lock mechanism 8, contact surface 6 is locked by lock mechanism 8.

The Examiner does not cite page 9, second paragraph, in which operation of lock mechanism 8 is explained. Lock mechanism 8 provides a click impression that indicates whether the pressure on contact surface 6 is sufficient. A user adjusts the finger pressure until the click impression is obtained. As clearly stated at the end of the paragraph, the click impression prevents insufficient and surplus pressure on contact surface 6. It is implicit in this statement that if there is insufficient pressure the click impression will not be obtained and if there is surplus pressure the click impression will not be obtained. The only way to avoid a click impression when the pressure is too high is for the contact surface to move below the detent position. That is, if the user applies too much or too little pressure, the click impression is not made (except for a momentary passage through the click impression when the pressure is too high) and the fingerprint detecting unit 11 is not operated. The lock mechanism helps the user apply the correct pressure to the contact surface by providing a reference position that the user's fingertip is to maintain.

Note also that the holder 10 extends above and below the predetermined position. There is nothing to prevent the contact surface from moving below the predetermined position if too much pressure is applied to the contact surface.

Indeed, the object of the invention is to reduce pressure variation on the contact surface. To this

end, the device must provide consequences when the pressure is too low and too high. If the downward pressure is too low, the contact surface will move up, breaking contact with the switch. If the downward pressure is too high, the contact surface will move down, breaking contact with the switch. If the device has no consequences for application of too much pressure, the pressure would not be uniform; that is, the pressure could vary so long as it is above the pressure needed to push the contact surface into the predetermined position. Upon reading the specification in its entirety, including the second paragraph on page 9, one of skill in the art will recognize that the user must adjust fingertip pressure to hold the click impression to avoid turning OFF switch 9 and that too much pressure and too little pressure will avoid the click impression and turn OFF switch 9.

Accordingly, for the reasons given above, the contact surface must move below the detent 10a when pressure on the contact surface is greater than the desired (first) pressure. The specification describes the subject matter of claim 20 in such a way as to reasonably convey to one skilled in the art that the inventor had possession of the claimed invention at the time the application was filed.

Rejection Under §103.

Claims 8-22 are directed to an embodiment of the present invention defined in claim 20 that includes a restraint that has a detent position at a depressed location of the contact surface and that urges the contact surface to remain in the detent position when a first pressure is applied to the contact surface by a fingertip and permitting movement of the contact surface below the detent position when pressure on the contact surface is greater than the first pressure and above the detent position when pressure on the contact surface is less than the first pressure.

The Examiner acknowledges that SHIMIZU et al. do not disclose a restraint having a detent position at a depressed location of the contact surface and urging the contact surface to remain in the detent position when a first pressure is applied to the contact surface. The Official Action relies on NISHIKI for this feature, pointing to detector 5 and page 5, lines 12-20 and page 6, lines 1-12.

However, as indicated at page 5, lines 17-18, of NISHIKI, detector 5 stops movement of transparent body 2, and prevents movement of body 2 beyond detector 5. The reference states that when body 2 is pushed to detector 5 there is sufficient pressure to detect a fingerprint. The reference does not account for the situation when too much pressure is applied to body 2. Once body 2 reaches detector 5, the user may continue to increase the pressure or cause the pressure to vary so long as the pressure is sufficient to maintain contact with detector 5. This is the very problem avoided by the invention of claim 20. If one of skill in the art were to apply this teaching to SHIMIZU et al., the same problem would carry over. Nothing in either reference suggests a detent that permits movement of the contact surface below the detent position when pressure on the contact surface is greater than the desired (first) pressure and above the detent position when pressure on the contact surface is less than the first pressure.

Further, detector 5 is not a detent position of a restraint at a depressed location of the contact surface. Detector 5 is a stopper that projects into the path of the contact surface. The combination of references suggests adding a projecting stopper to the restraint in SHIMIZU et al., not a detent that allows the contact surface to move through the detent.

Claims 23-24 are directed to a further embodiment in which the restraint is a spring member with a recess that defines the detent position. As noted above, neither reference discloses the detent. In addition, neither reference discloses that the restraint is a spring member with a recess. Since neither reference discloses this feature, the feature would not be obvious to one of skill in the art. The Official Action points to spring 4 in NISHIKI, but spring 4 does not have a recess that defines a detent position.

Claim 25 was rejected only under §112, first paragraph, and thus is allowable upon reversal of that rejection.

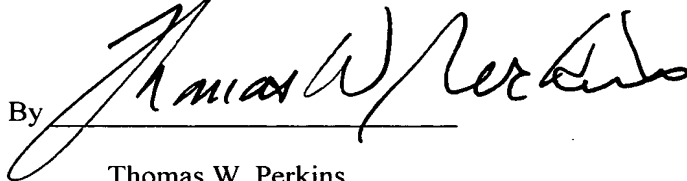
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In view of this, it is believed that the rejection of record cannot be sustained and that the same must be reversed, and such is respectfully requested.

Respectfully submitted,

YOUNG & THOMPSON

By

A handwritten signature in dark ink, appearing to read "Thomas W. Perkins", written over a horizontal line.

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9. Appendix

The claims on appeal:

- ✓ 8. A device as claimed in claim 20, comprising:
a memory for storing a sequence of fingerprint data signals, which is detected from a fingertip;
and
means for comparing a fingerprint of the fingertip placed currently on said contact surface with
the fingerprint data signal sequence stored in said memory.
9. A device as claimed in claim 20, wherein said detecting unit comprises a solid-state image
sensor for scanning a fingerprint image into a sequence of data signals.
10. A device as claimed in claim 20, wherein said detecting unit comprises:
a converting circuit to convert a variable pressure from the fingertip into a variable electric
resistance; and
a measuring circuit to measure said variable electric resistance.
11. A device for detecting a fingerprint as claimed in claim 20, wherein said detecting unit
comprises:
a converting circuit to convert a variable pressure from the fingertip into a variable capacitance;
a measuring circuit to measure said variable capacitance.
12. An electric apparatus which executes a predetermined operation and which includes the
device claimed in claim 8, wherein said electric apparatus is powered when the fingerprint data signal
sequence of the fingertip placed currently on said contact surface is stored in said memory.
13. An electric apparatus as claimed in claim 12, wherein the device is operable as a power
switch.
14. An electric apparatus which executes a predetermined operation and which includes the
device claimed in claim 8, wherein said electric apparatus is powered when the fingertip placed currently

on said contact surface is coincident with the fingerprint data signal sequence stored in said memory.

15. An electric apparatus as claimed in claim 14, wherein the device is operable as a power switch.

16. A doorkeeper apparatus which controls a door lock mechanism and which includes the device claimed in claim 8, wherein said doorkeeper apparatus opens a door when the fingerprint data signal sequence of the fingertip placed currently on said contact surface is stored in said memory.

17. A doorkeeper apparatus as claimed in claim 16, wherein the device is operable as a doorbell switch.

18. A doorkeeper apparatus which controls a door lock mechanism and which includes the device claimed in claim 8, wherein said doorkeeper apparatus opens a door when the fingertip placed currently on said contact surface is coincident with the fingerprint data signal sequence stored in said memory.

19. A doorkeeper apparatus as claimed in claim 18, wherein the device is operable as a doorbell switch.

✓ 20. A device for detecting a fingerprint of a fingertip placed on a contact surface that moves up and down and is part of a fingerprint input section, the device comprising:

a moving element opposing downward movement of the contact surface when the contact surface is pressed downward by a fingertip whose fingerprint is to be detected;

a restraint having a detent position at a depressed location of the contact surface and urging the contact surface to remain in the detent position when a first pressure is applied to the contact surface by a fingertip and permitting movement of the contact surface below the detent position when pressure on the contact surface is greater than the first pressure and above the detent position when pressure on the contact surface is less than the first pressure; and

a detecting unit detecting a fingerprint on the contact surface when the contact surface is in the detent

position.

✓ 21. The device of claim 20, further comprising a switch at the detent position that activates said detector when the contact surface is in the detent position.

✓ 22. The device of claim 21, wherein the contact surface comprises a projection that contacts said switch when the contact surface is in the detent position.

✓ 23. The device of claim 20, wherein said restraint comprises a spring member with a recess that defines the detent position.

✓ 24. The device of claim 23, wherein the contact surface comprises a projection that fits into said recess when the contact surface is in the detent position.

✓ 25. The device of claim 24, wherein said spring member comprises a leaf spring that is urged radially outward by said projection when said projection is not in said recess.